IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **BALLATO et. al**
Application Serial No.: **10/669,282**
Application Filed: **September 24, 2003**
Attorney Docket No.: **CECOM 5501**
For: **ELECTRODE-FREE RESONATOR STRUCTURES FOR FREQUENCY CONTROL, FILTERS AND SENSORS**

PRELIMINARY AMENDMENT

AMENDMENTS TO THE SPECIFICATION

Delete the paragraph at page 5, lines 6-21 and replace the deleted paragraph with the following replacement paragraph:

Referring now to the drawings, FIG'S 3A-3C are top, cross sectional and bottom views of the double-sided electrode-free resonator device 20 in accordance with the present invention. FIG. 3A depicts the top view of the double-sided electrode-free resonator device 20, comprising a double-sided mesa resonator plate 21 with a top surface 22, a top well 23, a mesa 24 and a top electrode 27. The top electrode 27 has a top narrow portion 28 disposed on the top surface 22 and a well portion 29 that extends into the top well 23 and surrounds mesa 24, allowing mesa 24 to protrude upwards and provide an electrode-free resonator area 30. A bottom well 25 and bottom surface 26 are depicted in FIG. 3B and not shown in FIG. 3A. A resonator 31 is located in the resonator area 30. The mesa resonator plate 21 supports the resonator 31 and energy is confined to the top well 23 and bottom well 25, shown in FIG. 3B, because the electrode-free resonator area 30 provides an active element where most of the acoustic energy is trapped. The resonator 31 is positioned in the resonator area 30 with an exposed portion of the mesa 24 situated between the resonator 31 and the resonator area 30 defining a first acoustic gap, ~~l_7~~ l_4, 32. Resonator 31 has a resonator length, l_3, and a resonator width, w_3. The electrode length l_2 can be greater than the resonator length l_3, and the electrode width w_2 can be greater than the resonator width w_3.

Delete the paragraph at page 6, lines 1-9 and replace the deleted paragraph with the following replacement paragraph: